Environmental Mitigation Process Review

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U.S. Department of Transportation
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Environmental Mitigation Process Review

Executive Summary

In 2008 the Arizona Division of the Federal Highway Administration (FHWA), U S Army Corps of Engineers (COE), Bureau of Land Management (BLM), and the Arizona Department of Transportation (ADOT) participated in a process review to determine how environmental commitments made in National Environmental Policy Act (NEPA) documents are tracked and implemented. FHWA wanted to know what steps ADOT is taking to assure compliance with environmental commitments on FHWA federal-aid projects. The process review's objectives were to understand the existing process, to examine what is working and what areas might need improvement.

ADOT's project development processes require the proper development and implementation of environmental commitments. NEPA documents and permit conditions outline project specific environmental commitments, including impacts to the environment that should be minimized or avoided. To successfully develop and implement environmental commitments, ADOT has hired a professional staff of environmental planners and technical experts who work closely with project managers and district staff to communicate and track environmental commitments during project development and construction and maintenance implementation.

This environmental mitigation process review included interviews with ADOT environmental planners and project managers, agency representatives, district engineering, maintenance, and environmental staff members; reviews of environmental clearance document mitigation measures; as well as related construction site visits.

Finally, this process review has resulted in several findings and recommendations designed to help strengthen ADOT's commitment to developing, tracking, and implementing its environmental commitments for federally funded projects.

Background

The successful implementation of environmental commitments described in NEPA documents or project mandated permits is a critical aspect of the transportation project development process and has been a requirement for many years. It is also a key element in FHWA's responsibility to

assure that these measures are implemented according to FHWA Code of Federal Regulations (CFR) 771.109(b):

> It shall be the responsibility of the applicant, in cooperation with the Administration, to implement those mitigation measures stated as commitments in the environmental documents prepared pursuant to this regulation. The FHWA will assure that this is accomplished as a part of its program management responsibilities that include reviews of designs, plans, specifications, and estimates (PS&E), and construction inspection.

Similar emphasis was placed on the implementation of environmental commitments in FHWA's Environmental Policy Statement issued in 1990 and was emphasized as a component of FHWA's National Strategic Plan Objectives for Environmental Goal throughout the 1990s.

Other environmental laws often address commitments that are just as legally binding as the commitments made during the NEPA process. For example, the commitments made during the consultation process of the Endangered Species Act to conserve a threatened or endangered species or commitments made during implementation of the National Historic Preservation Act to minimize the effect of a project on cultural resources direct project proponents in the ways to protect the human and natural environment impacted by their projects.

In 2006 the Arizona Department of Transportation (ADOT), in a continuing effort to demonstrate its commitment to environmental stewardship standards and practices, established the Office of Environmental Services (OES) within its Intermodal Transportation Department to oversee all environmental programs within ADOT. Per its web site: "OES will insure that local, state, and federal environmental laws are complied with during the development, construction, and operation of ADOT facilities."

The Office of Environmental Services includes 5 groups with varying responsibilities for carrying out ADOT's environmental planning and compliance programs.

1. The Environmental Planning Group (EPG) oversees the preparation of environmental documents for all highway improvement and enhancement projects. These documents insure that all relevant environmental factors are appropriately addressed and mitigated.

2. The Natural Resources Management Group's mission is to support the operation and maintenance of Arizona's highway system by implementing a state-of –the-art natural resources planning, compliance and management program while upholding the diverse environmental responsibilities of the Arizona Department of Transportation.

3. The Compliance Group insures that environmental regulatory requirements are met for all ADOT activities. This includes mitigation measures resulting from the NEPA process, terms and conditions of Section 404 permitting, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund and many more regulatory acts.

4. The Water Quality Group oversees regulatory requirements on surface and groundwater for all ADOT activities.

5. The Plans and Permits Group provides a management framework for the environmental requirements on all ADOT activities. The Group will also provide a data management system for the various plans and permitting within ADOT.

Although not working directly for OES, ADOT has also placed staff within each Engineering District. These District Environmental Coordinators (DECs) report to the District Engineers and represent the Districts environmental interests in the project development, design, construction, and maintenance phases.

These groups within OES reflect the seriousness with which ADOT is now approaching its environmental stewardship responsibilities across Arizona. In addition, ADOT has established an Environmental Servant Leadership Team (ESLT) that, among other things will work on ways to address improvements in tracking, implementing, and complying with environmental commitments established during the project development process. The FHWA environmental staff has been invited to participate and have become active members of this team.

Purpose and Objective

The purpose of this process review has been to evaluate the extent to which environmental commitments made during project development (i.e. those described in documents prepared pursuant to NEPA and other environmental laws) are being implemented on projects funded under the Federal-aid highway program.

The objective of this review has been to document how ADOT monitors its environmental commitments; to determine what steps ADOT can take to improve compliance with environmental commitments; and to highlight ADOT's efforts to become a leader in environmental stewardship.

Scope

The scope of this process review has included:

- Surveying ADOT environmental and project development staff to determine the extent to which they understand organizational roles and responsibilities related to developing and implementing environmental mitigation measures.
- Surveying environmental staff to determine the extent to which they understand ADOT's processes and procedures for developing and implementing environmental mitigation measures.
- Conducting interviews with ADOT environmental planners and project managers, agency representatives, district engineering and environmental staff members.
- Reviewing mitigation measures for select projects and conducting construction site visits to determine how/if environmental commitments were being implemented.

Observations/Recommendations

Observation 1: There is often confusion and/or uncertainty concerning who is responsible for tracking development and implementation of environmental commitments through project development, construction, and maintenance.

Recommendation: Establish a clear path of communication and responsibility for the "hand-off" of environmental commitments and include the information in the projectfiles through project development, construction, and maintenance.

Follow-up Action: The ESLT has established a sub committee to address how to track mitigation measures from project development through implementation

FHWA Follow-up Action Lead: Steve Thomas (as a member of the Mitigation Measures sub committee)

Observation 2: There is no established tracking mechanism for ensuring compliance with environmental commitments during construction activities.

Recommendation: Develop a plan and tracking mechanism that ensures compliance with environmental commitments during project construction activities.

Follow-up Action: The ESLT has established a sub committee to address how to track mitigation measures from project development through implementation

FHWA Follow-up Action Lead: Steve Thomas (as a member of the Mitigation Measures sub committee)

Observation 3: Recent turn-over and staffing limitations have a direct impact on developing appropriate environmental mitigation measures during project development. Education and training specific to developing mitigation measures is limited to on-the-job training.

Recommendation: Education and training are critical for staff to become more aware of environmental impacts associated with projects. A Mitigation Measures Training program would help staff recognize and develop appropriate environmental commitments that avoid and/or mitigation environmental impacts. Develop and offer a training program to all OES staff and DECs specific to recognizing what mitigation measures would be appropriate for transportation projects and practice developing measures that can be implemented and tracked constructability and cost effectiveness.

Follow-up Action: OES/EPG management to determine appropriate training program for environmental staff on the development and implementation of Mitigation Measures.

FHWA Follow-up Action Lead: Mary Frye

Observation 4: Environmental commitments are sometimes not understood or are difficult to construct and/or maintain, e.g. seasonal construction restrictions for endangered species, Section 106 avoidances post construction and maintenance activities.

Recommendation: Greater involvement by district staff, including DECs, early in the mitigation measure development process would give planning staff better insight into constructability and maintenance issues. Involve district staff in developing the mitigation measure training recommended above.

Follow-up Action: ESLT subcommittee on Mitigation Measures to address constructability issues.

FHWA Follow-up Action Lead: Steve Thomas (as a member of the Mitigation Measures sub committee)

Observation 5: Mitigation measures requiring re-vegetation following construction activities are often not appropriate to the project's environment. For example, re-vegetation practices in Yuma are much different than those needed in Prescott or Safford.

Recommendation: Establish a committee within ESLT to work with ADOT's Roadside Development section and DECs to refine re-vegetation practices specific to the districts.

Follow-up Action: At September 2008 ESLT DECs introduced proposal to work with Roadside Development to discuss final stabilization/seeding practices.

Successful Practices

Commendable Activity 1: FHWA salutes ADOT's establishment of an Environmental Servant Leadership Team (ESLT) with a vision of becoming "the standard of excellence in the transportation industry." The group's mission: *The Environmental Servant Leadership Team provides one voice for Environmental Leadership and Stewardship for ADOT and its stakeholders.* The team includes members of the various departments within the Office of Environmental Services, Roadside Development, Materials, District Engineers, and FHWA.

Responsible Party: ADOT Office of Environmental Services, Yuma and Flagstaff District Engineers

Commendable Activity 2: Within the ESLT, a standing committee on Mitigation Measures is working to improve the development, tracking, and implementation of environmental commitments. The committee will also address roles and responsibilities related to environmental commitments

Responsible Party: ADOT Office of Environmental Services, Yuma and Flagstaff District Engineers

Commendable Activity 3: FHWA commends ADOT for creating the Office of Environmental Services (OES) to centralize the coordination of environmental activities across the organization. FHWA supports OES as it continues to work to define the roles and responsibilities for all the departments within the Office and working to develop roles, responsibilities, and communication protocols between the groups.

Responsible Party: ADOT State Engineer

Commendable Activity 4: FHWA commends ADOT for undertaking several important research activities including:

- Suhauro Cactus recovery – This program is reviewing past efforts that salvaged and transplanted Suhauro Cactus, analyzing recovery successes and evaluating lessons learned to carry into future projects.
- Section 404 – This research project is looking at past mitigation that was required through the Clean Water Act Section 404 permitting program. It is looking at what efforts were successful and which were not.
- Desert Tortoise on US 93 – This project is looking at past Desert Tortoise mitigation implemented on projects along US 93. Such items as fencing and crossings are going to be catalogued and analyzed to determine if the things that were funded are working and to determine if they are not working, why they are not and how such efforts can be improved.

Responsible Party: Arizona Transportation Research Center

Commendable Activity 5: FHWA commends ADOT EPG for developing a list of commonly used mitigation measures. These mitigation measures will be reviewed by OES managers and the DECs and then finalized for use on ADOT projects. This effort will eliminate unecessary project-by-project review.

Responsible Party: ADOT EPG

Conclusions

Historically, FHWA was able to readily monitor the implementation of the commitments made in environmental documents because the agency was involved at every stage of project development including construction inspections. However, beginning with the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, ADOT assumed some of the traditional project oversight and management responsibilities performed by FHWA including review of PS&Es and construction inspections (as defined in the FHWA/ADOT Stewardship Agreement).

Consequently, the Arizona Division Office has maintained a limited hands-on approach with advancing many Federal-aid projects under limited or partial oversight. This limited approach to design and construction oversight has effectively eliminated the avenues spelled out in 23 CFR § 771.109(b) for ensuring that environmental commitments are being implemented (i.e. reviews of design plans, specifications and estimates (PS&Es), and construction inspections). Regardless of the level of oversight, FHWA is still legally and ultimately responsible for ensuring that the environmental commitments made during project development are implemented prior to or during construction, maintenance and operation of Federal-aid projects.

To successfully execute environmental commitments, it is critical that ADOT hire, train, and retain professional staff. Education and training are critical if the ADOT's environmental staff is to become more aware of environmental impacts of transportation projects and they are to define the standard of excellence in the transportation industry.

ADOT is doing a commendable job in the area environmental mitigation but, as confirmed by ADOT staff and FHWA in this review, there are several areas in need of improvement. This process contains several observations and recommendations (see Observations and Recommendations section) designed to help strengthen ADOT's commitment to developing, tracking, and implementing its environmental commitments for federal-aid projects. FHWA's Arizona Division office will continue to support ADOT's environmental staff in meeting those commitments.

Attachments

Attachment A: Process Review Questions – Process
Attachment B: Process Review Questions – Project
Attachment C: ADOT Intermodal Transportation Division Organization Chart
Attachment D: ADOT Office of Environmental Services Decision Model

Attachment A

FHWA 2008

Environmental Mitigation Measures Process Review

Process Questions

Organizational Structure/Background (EPG)

What is the organizational structure of ADOT and how does the environmental program fit into this structure? Is the organization centralized or decentralized?

Have any changes been made to the organizational structure of ADOT affecting the environmental program?

What is the relationship of EPG within OES, as it relates to the DEC's and Natural Resources?

In terms of an interdisciplinary approach, how many ADOT environmental staff members have project specific responsibilities?

Do ADOT environmental staff members prepare environmental documents for FHWA funded projects? Please explain.

How many FHWA environmental documents (CE, EA, EIS) have been completed in the past 3 years by/for ADOT?

Is there a primary Environmental contact person assigned for each project?

ADOT Organizational Structure/Background

What is the organizational structure of ADOT and how does the environmental program fit into this structure? Is the organization centralized or decentralized?

Have any changes been made to the organizational structure of the ADOT affecting the environmental program?

How many ADOT Office of Environmental Services (OES) staff members have project specific responsibilities?

Do ADOT OES staff members participate in the preparation of environmental documents for FHWA funded projects? Please explain.

Preliminary Engineering/Environment

Does ADOT have any staff that is responsible for tracking environmental commitments into design? Into construction? Please elaborate.

Are routine project (monthly/quarterly) environmental or engineering meetings held? What is the intention of these meetings and who generally attends? Are resource agencies invited? Do design, construction, and EPG/OES staff attend?

How and at what stage in project development are design and construction engaged in project discussions related to conceptual environmental commitments?

How do you ensure that the environmental commitments are feasible from a design and constructability point of view?

How and when are resource agencies involved in the planning and development of mitigation measures?

What documents other than standard NEPA documents, if any, are used to summarize environmental commitments?

Are there any processes or mechanisms in place designed to ensure that environmental commitments are carried forward from environment to design and construction? What form does this communication take?

Does the ADOT EPG/OES staff have a role in ensuring that environmental commitments are included in the design plans?

Does the ADOT EPG/OES staff have a role in ensuring that environmental commitments are included in the final PS&E package?

Does the ADOT EPG staff have a role in ensuring that design changes do not adversely impact environmental commitments?

Does the ADOT EPG/OES staff have a role in ensuring that environmental commitments are being implemented in the field?

Design

Are there any processes or mechanisms in place to ensure that mitigation commitments are incorporated into design plans and construction contracts?

Who is responsible for ensuring that environmental commitments have been included in the design plans and contracts?

If changes are made to the scope of the project during design that could potentially impact environmental commitments, is there a process in place for ensuring that the appropriate environmental staff is notified?

Are environmental commitments discussed in partnering meetings with design consultants?

What measures are in place to assure that mitigation measures are not “value engineered” out of a project?

Do you perceive of any problems with the design process as it relates to the implementation of environmental commitments?

Are there any processes or mechanisms specific to design that are used to communicate environmental commitments to construction administration staff? To the construction contractors? Please explain/elaborate.

Who is ultimately responsible for checking that environmental commitments are incorporated into the final design?

Construction

Are there any processes or mechanisms in place to ensure that mitigation commitments are carried forward from design to construction? Please explain/elaborate.

Are environmental commitments discussed in pre-bid meetings with contractors?

Are environmental commitments discussed in partnering meetings with contractors?

If there is a problem with the implementation of an environmental commitment, is there a process for resolving the problem?

Are you aware of any problems with the construction process as it relates to the implementation of environmental commitments? Please explain/elaborate.

Is there any follow-up with the resource agencies on environmental commitment compliance?

Maintenance

How and at what stage in project development is maintenance engaged in project discussions related to conceptual environmental commitments?

Are there any processes or mechanisms in place designed to ensure that environmental commitments are carried forward from environment and into maintenance and operation? What form does this communication take?

General

Are design and construction engineers and managers trained and instructed in the importance of environmental commitments?

What guidance or instruction is available or provided to design, construction, and maintenance personnel on environmental commitment compliance?

Have any changes been made to the processes or mechanisms for implementing environmental commitments based on lessons learned from past projects?

Do you have any suggestions for improving the processes or mechanisms by which environmental commitments are implemented?

Attachment B

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Environmental Mitigation Measures Process Review

Project Questions

Design

Are you aware of any projects where problems arose with the implementation of one or more environmental commitments? Please explain/elaborate.

Construction

How are environmental commitments accounted for in construction contracts?
Who is responsible for ensuring that environmental commitments are followed through during construction?

Are environmental commitments discussed in pre-construction meetings with contractors?

What measures are in place to assure that mitigation measures are not "value engineered" out of a project?

If a project manager or contractor has problems with the construction aspects of environmental commitments during implementation, who do they go to in order to resolve it?

If design changes or a work order are needed during construction, who verifies changes don't adversely effect the environmental commitments, or change the footprint that was included in the original NEPA document?

Is the implementation of environmental commitments verified in the field during or after construction? If so, by whom? How is this documented?

If there is a problem with the implementation of an environmental commitment, is there a process for resolving the problem?

Are you aware of any projects where problems arose with the implementation of one or more environmental commitments during construction? Please explain/elaborate.

Maintenance

How do you ensure that the environmental commitments are feasible from a long- term maintenance point of view?

Does the maintenance staff have a role in discussions on environmental commitments as they relate to feasibility and constructability?

Do you perceive of any problems with the implementation of environmental commitments as it relates to maintenance? Please explain/elaborate.

General

Do you have any examples of mitigation practices that have not worked? Have any actions taken place to ensure the mitigation measures are not used in future projects or are modified so that they will be successful in the future? Please explain/elaborate.

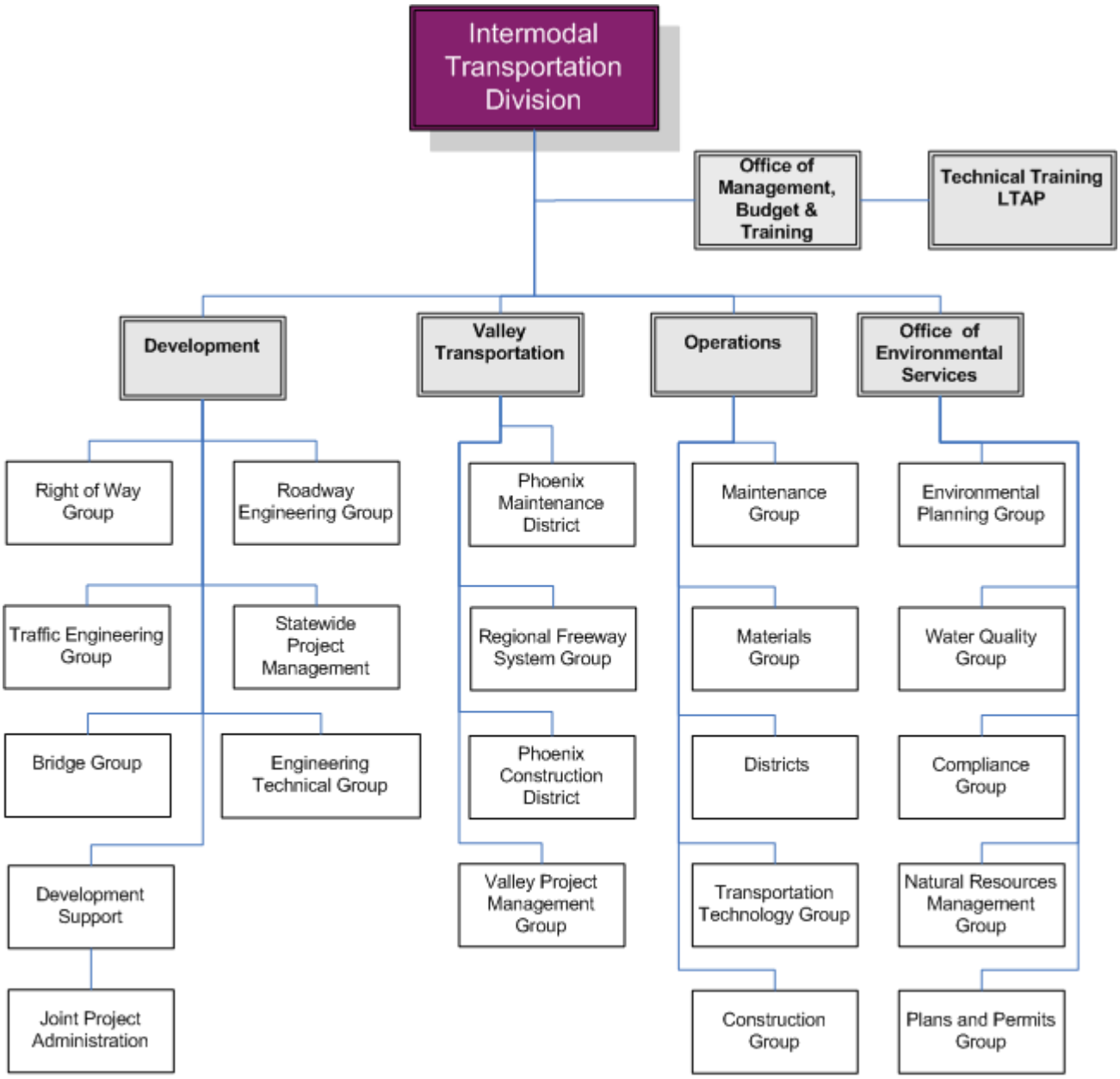
Attachment C

Office of Environmental Services Decision Model

- **Demonstrates input for environmental decisions comes from everybody in every department – serves as a "decision model, not a hierarchy"**

Attachment D

ADOT Office of Environmental Services
within the
Intermodal Transportation Division Organization



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